

Listing of Claims:

Claim 1 (Canceled).

2. (Previously Presented) The defect inspection apparatus according to claim 18, wherein

if the focusing control using the second focusing control parameter is unsuccessfully performed when said pattern image obtaining unit obtains the pattern image of the part to be inspected, the focusing control parameter is changed to the first focusing control parameter and the pattern image of the part to be inspected is obtained by performing the focusing control using the first focusing control parameter.

3. (Previously Presented) The defect inspection apparatus according to claim 2, wherein

if the focusing control using the first focusing control parameter is unsuccessfully performed when said pattern image obtaining unit obtains the pattern image of the part to be inspected, the pattern image of the part to be inspected is obtained by regarding the focusing position of the reference part as the focusing position of the part to be inspected.

4. (Original) The defect inspection apparatus according to claim 3, wherein

when said pattern image obtaining unit obtains the pattern image of the part to be inspected by regarding the focusing position of the reference part as the focusing position of the part to be inspected, information about unsuccessful focusing control is added to the pattern image of the part to be inspected.

Claims 5-8 (Canceled).

9. (Currently Amended) A defect inspection method, comprising:

driving a stage or an objective lens facing an observation object in order to change an observation part of the observation object placed on the stage to a reference part determined to be normal beforehand within the observation object;

performing focusing control with a focusing control unit which changes a relative distance between the stage and the objective lens in a direction of the optical axis of the objective lens so that automatic focusing is achieved on the reference part according to a first focusing control parameter;

determining a second focusing control parameter based on sample information obtained when performing the focusing control to achieve the automatic focusing on the reference part using the

- 15 first control parameter, wherein the sample information ~~comprises~~
contains at least one of information about the focusing position
of the reference part and information about a light amount
according to light reflected from the reference part, and the
second focusing control parameter contains at least one of
20 movement speed used by said focusing control unit, search range
used when acquiring the observation object, autofocus method,
offset amount, and contrast threshold;
performing focusing control so that focusing is achieved on
the reference part according to the first focusing control
25 parameter;
obtaining a pattern image of the reference part;
driving the stage or the objective lens in order to change
the observation part of the observation object to a part to be
inspected, which becomes a target of inspecting for the presence
30 or absence of a defect within the observation object;
~~setting the focusing parameter to the second focusing~~
~~parameter;~~
performing the focusing control with the focusing control
unit so that automatic focusing is achieved on the part to be
35 inspected according to the second focusing control parameter;
then
obtaining a pattern image of the part to be inspected; and

detecting the presence or absence of an abnormal condition of the part to be inspected by making a comparison between the pattern image of the reference part and the pattern image of the part to be inspected.

10. (Previously Presented) The defect inspection method according to claim 9, wherein:

if the focusing control using the second focusing control parameter is unsuccessfully performed, the focusing control parameter is changed to the first focusing control parameter and the pattern image of the part to be inspected is obtained by performing the focusing control using the first focusing control parameter.

11. (Previously Presented) The defect inspection method according to claim 10, wherein:

if the focusing control using the first focusing control parameter is unsuccessfully performed when obtaining the pattern image of the part to be inspected, the pattern image of the part to be inspected is obtained by regarding the focusing position of the reference part as the focusing position of the part to be inspected.

12. (Original) The defect inspection method according to claim 11, wherein:

when the pattern image of the part to be inspected is obtained by regarding the focusing position of the reference part as the focusing position of the part to be inspected, information about unsuccessful focusing control is added to the pattern image of the part to be inspected.

Claims 13-17 (Canceled).

18. (Currently Amended) A defect inspection apparatus, comprising:

a stage on which an observation object is placed;

an objective lens for imaging the observation object;

an observation part changing unit for changing an observation position of the observation object via the objective lens by moving at least one of the stage and the objective lens in a direction perpendicular to an optical axis of the objective lens;

a focusing control unit for performing automatic focusing by changing a relative distance between the stage and the objective lens in a direction of the optical axis of the objective lens to focus on the observation object;

a parameter setting unit for setting a focusing control parameter used for controlling the automatic focusing;

a pattern image obtaining unit for obtaining a pattern image of an observation part by driving the observation part changing unit to change the observation position;

20 a pattern image storing unit for storing the pattern image obtained by said pattern image obtaining unit;

a detecting unit for detecting the presence or absence of a defect of a part to be inspected by making a comparison between the pattern image of a reference part in the observation object stored in the pattern image storing unit and the pattern image of
25 the part to be inspected in the observation object;

wherein said pattern image obtaining unit is arranged to obtain the pattern image of the reference part in the observation object determined as normal beforehand by performing the focusing control via the focusing control unit using a first focusing
30 control parameter set by the parameter setting unit, and arranged to change the observation position to the part to be inspected and obtain the pattern image of the part to be inspected by performing the focusing control via the focusing control unit using a second focusing control parameter set by the parameter
35 setting unit, and

wherein said focusing control unit is arranged to determine the second focusing control parameter, used when obtaining the pattern image of the part to be inspected, based on sample information obtained when the pattern image of the reference part

40 is obtained by performing the focusing control to obtain the
pattern image of the reference part using the first focusing
control parameter,

wherein the sample information ~~comprises~~ contains at least
one of information about the focusing position of the reference
45 part and information about a light amount according to light
reflected from the reference part, and

wherein the second focusing control parameter contains at
least one of movement speed used by said focusing control unit,
search range used when acquiring the observation object, autofocus
50 method, offset amount, and contrast threshold.

Claim 19 (Canceled).

20. (Previously Presented) The defect inspection apparatus
according to claim 18, wherein:

said pattern image obtaining unit obtains a plurality of
inspection images of the reference part by operating said
5 observation part changing unit after obtaining a reference image
of the reference part and detects defects by comparing the
plurality of inspected images with one reference image in the
detection unit, respectively.

21. (Previously Presented) The defect inspection apparatus
according to claim 18, wherein:

the reference part and the part to be inspected are provided in a specific position in the observation object having a plurality of same patterns and the patterns of the reference part and the inspection part are the same, respectively.

22. (Previously Presented) The defect inspection apparatus according to claim 21, wherein:

the presence or absence of a defect is detected by making a comparison between the pattern image of the reference part stored in said pattern image storing unit and the pattern image of the part to be inspected by said detecting unit, and if a different part is found in each pattern, the pattern image of the part to be inspected is determined to be abnormal and if the patterns are the same, they are determined to be normal.

Claim 23 (Canceled).

24. (Previously Presented) The defect inspection method according to claim 9, wherein:

after obtaining a reference image of the reference part, a plurality of inspection images of the reference part are obtained and defects are detected by comparing the plurality of inspected images with one reference image, respectively.

25. (Previously Presented) The defect inspection apparatus according to claim 18, wherein:

the reference part and the part to be inspected are provided in a specific position in the observation object having a plurality of same patterns and the patterns of the reference part and the inspection part are the same, respectively.

26. (Previously Presented) The defect inspection apparatus according to claim 25, wherein:

the presence or absence of a defect is detected by making a comparison between the obtained pattern image of the reference part and the pattern image of the part to be inspected, and if a different part is found in each pattern, the pattern image of the part to be inspected is determined to be abnormal and if the pattern are the same they are determined to be normal.